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ABSTRACT

A review of the literature and empirical studies were used to investigate aspects that bear on the evaluation of university instruction in Sweden. Evaluation was regarded as a comparison between observations and intentions of instruction. The model used is concerned with the interrelationships among goals and guidelines, the design of a department's instruction, background information (teachers, students, course content, organization, and study environment), the teaching process, and the final outcome. Detailed investigations dealt with (1) evaluation of courses in three different university subjects; (2) surveys of previous knowledge in university subjects; and (3) factors influencing satisfaction and study achievement. Advantages of using a total evaluation model are outlined. (LBH)

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# Educational Development

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## Completed Project

1976:4

**Project title:** Evaluation of university teaching at the department level

**Carried out at:** Department of Education, University of Umeå,
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**Scientific leader:** Professor Sten Henrysson

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### Background and purpose

Increasing attention began to be paid to problems of university pedagogics during the second half of the 1960s. In Sweden a Commission (UPU) was appointed on the subject, and following in the wake of this Commission, evaluation has developed during the present decade into a specific field of interest in higher education. The rising need for evaluation can be attributed to a series of changes occurring in recent years. Rising numbers of students have generated heavy expenditure in the post-secondary sector, with the result that planning and efficiency measures have become a progressively more urgent necessity. Evaluation has been undertaken to see whether the resources applied and the measures taken have yielded the return intended. Various decisions in the field of education policy, such as the expansion of upper secondary education and new rules of admission to higher education, have opened university education opportunities to categories which were formerly excluded. Student groups have become more heterogeneous, both socioeconomically speaking and in terms of study aptitude and educational background. New educational variants, such as university courses combined with courses at upper secondary or vocational schools, and systematic decentralized university studies, have been introduced.

At the same time as increasing demands have been made for follow-up and evaluation, criticism has been levelled against current methods of educational evaluation. Educational statistics in the



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form of examination results, study points and degrees have been taken as the starting point for recommendations and decisions. Quantitative evaluation of this kind says little about the manner in which instruction is provided and the changes which should be effected in order to raise its quality. Evaluation methods need to be developed which focus more upon the latter aspects.

Our project, which began in 1972, is to be seen in this light. The superordinate aim has been, by means of a review of literature and the conduct of empirical studies, to elucidate and investigate aspects which may have an essential bearing upon the evaluation of university instruction. Various mutually complementary investigations have been undertaken to this end.

## Design and focus of the project

The development of the project and theoretical and empirical contributions made to it have been best described in a joint thesis entitled "Evaluation of teaching - an analysis of problems together with some empirical studies at university level" (Franke-Wikberg & Johansson, 1975). The following summary is constructed on much the same lines as the thesis.

## Analysis of literature

Our analysis includes a review of the meaning attached to the evaluation concept and to the general purpose and constituent activities of evaluations. Different lines of development in evaluation are discussed as well as the relation of evaluation to educational research. Some examples of evaluation models are presented, and an appraisal is undertaken of their usefulness and function in the evaluation context. Different approaches to evaluation are analysed in terms of their relation to educational and social attitudes. Evaluation problems in evaluation are considered and there is a discussion of the data which should be collected and the methods which can be used. The analysis of literature provides a foundation for the empirical studies and leads on to an empirical model for evaluation. This model does not exist in vacuo; we assume that instruction is related to a wider context.

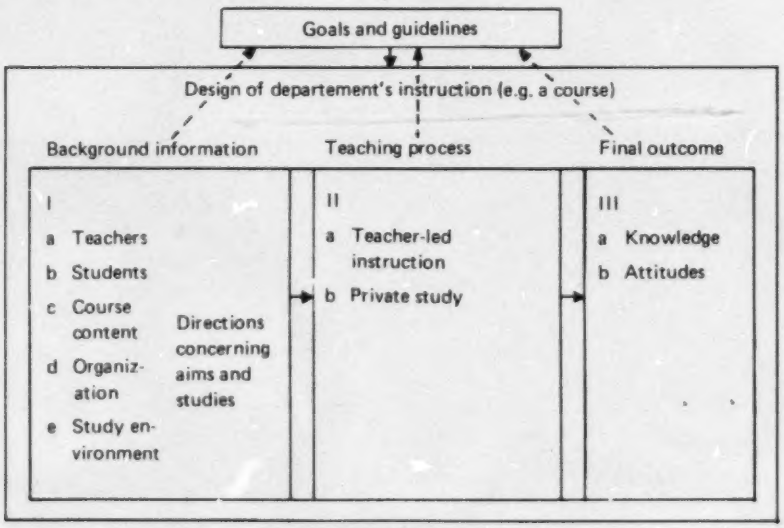


*Figure 1. Model for evaluation work.*

Briefly, we have regarded evaluation as a "comparison between observations and intentions of instruction". The broken lines in the model indicate the discussion which can be held concerning the relation of the observations to the superordinate intentions of teaching

The model implies an investigatory approach involving a study both of goals and guidelines and of the way in which they are apprehended and concretized. The characteristics of the student group, the teacher's aims in the planning of instruction, the content and organization of the instruction and environmental factors are all analysed. These very immediate preconditions of the teaching process we term background information. A study of the instruction should comprise the teacher and student components and the content and design of the instruction. Observations of the teaching process and the follow-up of private study are important elements of evaluation. Situation-specific outcomes (process outcomes) are necessary, and different types of final outcome are of interest. The evaluator should try to relate these aspects to each other and view the instruction in its context. Efforts to shed light on the teaching situation as a whole make it possible to compare the teaching with its intentions.

The empirical studies which have been carried out can be divided into three blocks:

I Evaluations of courses in three different university subjects. These evaluations are directly linked to the overall view implied by the model, i.e. data have been collected before, during and after each course.

II Three surveys of previous knowledge in university subjects, constituting deeper studies of a component of the model.

III An investigation concerning factors influencing satisfaction and study achievement. Factors of this kind have been identified by means of a critical incident technique. This investigation reflects the model as a whole in the same way as the studies in point I, but it has a more extensive character than the latter.

## Detailed investigations conducted

### *I Evaluation of courses in three different university subjects*

During the autumn term 1972, the course entitled "Analysis I" (9 points) was evaluated. Evaluations during the spring term of 1973 concerned the "Analysis II" (8 points) and "Theory of probability and statistics" (7 points) mathematics courses. English studies have been evaluated with reference to the "Command of written language" course (4 points) and history with reference to the "Modern history" (4 points) and "Economic history since 1914" (3 points) courses.

On the basis of an analysis of the superordinate intentions of teaching, expectations have been defined concerning the content and design of teaching and of the roles of teacher and students. Certain central concepts have been identified. The analysis pro-

vided the foundation for the selection of methods and the collection of data.

Background information on the students has been collected via a questionnaire, tests of previous knowledge and parts of an ability test. The questions included in the questionnaire primarily concern factors which can be influenced or which can be directly utilized for teaching purposes at the department. Information concerning 1 a, c - e in the model has been obtained by interviews of teachers, inquiries to directors of studies, the study of course instructions and timetables and direct observation.

The teachers have defined goal instructions in the manner considered most suitable for the subject in question. Students replying to the questionnaire have indicated the usefulness and use of the instructions and expressed viewpoints concerning them. In English and history, efforts have also been made to verbalize affective aims, and the fulfilment of these aims has then been rated by the students.

A modified Flanders checklist has been devised for the observation of teaching. Instead of regarding the students as a unit we have chosen to study the role of each student in the process. Each individual has therefore been identified. Observations have also been recorded in the form of a diary. Questionnaires and interviews have yielded supplementary information concerning the instruction.

A time estimation schedule has been produced to shed light on private study. One version has been made to include other activities besides those directly concerned with studies. Mathematics and English students have made daily entries in the schedule for a week in the middle of the sub-course, and history students also made such entries during the week preceding an examination.

Examination results have been collected as a measure of the cognitive outcome of the teaching processes. Student attitudes have been studied through fairly comprehensive questionnaires and, in the case of history students, via interview questions. Various types of question have been tested in the questionnaires. Certain teacher attitudes have transpired from the interviews.

### *II Surveys of previous knowledge in university subjects*

In the first survey, an exploration was made of the incidence of tests of previous knowledge at faculties of arts and sciences, together with their purposes, construction and use. The second study describes the previous knowledge which a number of university teachers expect of their students and their rating of the actual level of previous knowledge in the subject. Comparisons are made with the students' actual test perfomance. In the third study a technique for the revision of tests of previous knowledge is tried out and their relation to teaching is examined. The second and the third study are both focussed on the subjects mathematics, English and history. These surveys are described in the thesis, and they have also been separately reported (Educational Reports nos. 43, 44, University of Umeå - published in Swedish; summaries in English).

### *III Factors influencing satisfaction and study achievement – identification using the critical incident technique*

About 1,200 concrete events believed to have had a positive or negative effect on studies have been noted by 368 students. These events have been classified in accordance with the model, and the main areas have then been subdivided into various sub-categories. The different categories have then been rated concerning the degree and direction of their influence on studies. The last mentioned of these ratings was carried out during the spring term of 1974 by mathematics, English and history students at various universities in Sweden.

### Some findings

The findings show that there is a great deal of variation in different respects between students taking the same subject. Previous knowledge, expectations and opinions concerning the way in which teaching should be organized all vary a great deal from one student to another. Tests of previous knowledge are comparatively rare, and it is hard to discern any uniform approach to their construction and use. Teachers have difficulty in adapting their instruction to the students' previous knowledge. The demands made by teachers are too high in relation to the actual level of the students' knowledge. Teaching is teacher-dominated and its content and form are fairly rigidly planned. Student activity is relatively small during lessons. There is a great shortage of time and studies focus on examinations to a striking extent. The pattern of findings from the more extensive study (III) agrees well with the pattern yielded by the more intensive one (I). Among other things it has been found that the teacher is considered to play an important part in determining both study achievement and satisfaction and that co-operation between students, motivation and study habits are rated low by many respondents. Teacher viewpoints include the sentiment that they do not have time to create a pleasant atmosphere in the teaching situation. Reference is also made to the lack of personal contact with students (III).

Our general impression in the light of the findings obtained from these studies is that certain superordinate intentions such as, for example, individualized instruction and student activity are not catered for in practice. In the thesis an attempt is made to explain the image of teaching which we have acquired. The possibility is discussed of transforming instruction in a manner conducive to the fulfilment of the above mentioned intentions.

### Some final impressions from the work of the project

One of the guidelines of the project has been to combine a research-oriented approach with a working method making it possible at the same time to participate in the continuous development work of the departments. One result of this combination has been that the collection and analysis of data have been undertaken for different purposes. Apart from the processing of data being both time-consuming and conducted at a level characteristic of research analysis, great importance has also been attached to informing teachers and students as rapidly as possible of the results of evaluation. Our close

contact with teachers and students shows among other things that we do not regard evaluation as a mechanical activity divorced from the business of teaching.

Apart from the fact that the above mentiones survey strategies have had encouraging results, we may also mention the advantages of various kinds accruing from the use of a total evaluation model. These include the following:

- This approach has simplified the collection, interpretation and analysis of data.
- It has opened the way to attempts to explain the current teaching situation.
- We have been able to carry out various subsidiary investigations within the same theoretical framework, which has made it possible for our studies to gain in depth as well as width.
- Our emphasis on process data and the detailed analysis we have conducted at individual and teaching group levels have yielded valuable information which can be used for didactic purposes and in the development of theory.
- Closer studies, e.g. concerning previous knowledge, have been capable of leading to pedagogically enlightening arguments.
- Attention has been given to other measures of outcome besides study achievement.

The thesis also discussed when, how and by whom evaluation is to be performed and what use can be made of evaluation results. Suggestions are proffered for continuing research into evaluation problems.

**Reports**

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